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ABSTRACT

Career and technical education (CTE) can benefit students directly by providing earning advantages before and after graduation. It can benefit them indirectly by increasing engagement, retention, and persistence and by directing them to postsecondary education and pursuit of lifelong learning. CTE programs motivate students to get involved in their learning by engaging them in problem-solving activities that construct knowledge and by providing hands-on activities that enable them to apply knowledge; bring students and adults together in a setting of collaborative learning; and offer opportunities for students to interact with community members, potential employers, and students and teachers who share similar career/vocational interests through such organizations as Future Farmers of America. CTE programs offer students an alternative to college prep programs, programs they may not have the interest, ability, or skills to pursue. Research shows students considered "at risk" or "disadvantaged" and students with disabilities have greater success when they are enrolled in technology education, tech prep, school-to-career, and other CTE programs. (Contains annotations of 18 resources that contain information on the ways in which CTE programs, including student organizations, have benefitted students by improving employment, retention, and achievement outcomes.) (YLB)

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# The Benefits of Career and Technical Education
## Trends and Issues Alert No. 49

Bettina Lankard Brown

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TRENDS AND ISSUES ALERT NO. 49

by Bettina Lankard Brown

2003

# The Benefits of Career and Technical Education

Career and technical education (CTE) can benefit students directly by providing earning advantages, both before and after graduation. It can provide indirect benefits by increasing student engagement, retention, and persistence and directing them to postsecondary education and the pursuit of lifelong learning. Many factors contribute to these outcomes. Career and technical education programs motivate students to get involved in their learning by engaging them in problem-solving activities that lead to the construction of knowledge and by providing them with hands-on activities that enable them to apply knowledge. In addition, CTE programs bring students and adults (parents, teachers, community leaders) together in a setting of collaborative learning. They offer opportunities for students to interact with community members, potential employers, and students and teachers who share similar career/vocational interests through organizations such as Future Farmers of America (Ball et al. 2001).

Career and technical education programs offer students an alternative to college prep programs, programs that they may not have the interest, ability, or skills to pursue (Cohen and Besharov 2002). Research shows that students who are considered to be "at risk" or "disadvantaged" as well as students with disabilities have greater success when they are enrolled in technology education, tech prep, school-to-career, and other CTE programs (Brown 2000; Cardon 2000; Harvey 2001; Kerka 2000). The following resources contain information the ways in which CTE programs, including student organizations, have benefited students by improving employment, retention, and achievement outcomes.

## Resources

Ball, A. L.; Garton, B. L.; and Dyer, J. E. "The Influence of Learning Communities and 4-H/FFA Participation on College of Agriculture Students' Academic Performance and Retention." ***Journal of Agricultural Education*** 42, no. 4 (2001): 54-62.

A study of 442 freshmen in an agriculture college showed that students who participated in FFA or 4-H had higher cumulative grade point averages (GPAs) and higher rates of retention than those not involved.

Bottoms, G., and Presson, A. ***Using Lessons Learned: Improving the Academic Achievement of Vocational Students. Educational Benchmarks 2000 Series.*** Atlanta, GA: Southern Regional Education Board, 2000. (ED 451 366) http://www.sreb.org/main/Benchmarks2000/LessonsLearned.pdf

A study found that vocational students in High Schools That Work exceeded the national averages of vocational students in reading, mathematics, and science achievement. The following helped raise achievement: challenging curriculum, increased graduation requirements, mathematics and science course requirements for senior year, vocational teachers stressing academic knowledge and skills, high teacher expectations of students, guidance, and demanding standards for technical achievement.

Brown, C. H. "A Comparison of Selected Outcomes of Secondary Tech Prep Participants and Non-Participants in Texas." ***Journal of Vocational Education Research*** 25, no. 3 (2000): 273-95. http://scholar.lib.vt.edu/ejournals/JVER/v25n3/brown.html

A 5-year study of 10th-12th grade students in Texas revealed that students who participated in tech prep realized significant benefits over students who were not engaged in the program. Tech prep students had higher attendance rates, lower dropout rates, slightly higher graduation rates, and increased completion of college preparatory courses. Ethnic, at-risk, and disadvantaged populations realized the same rewards from tech prep.

Cardon, P. L. "At-Risk Students and Technology Education: A Qualitative Study." ***Journal of Technology Studies*** 26, no. 1 (Winter-Spring 2000): 49-57. http://scholar.lib.vt.edu/ejournals/JTS/Winter-Spring-2000/pdf/cardon.pdf

Observations of and interviews with eight at-risk students in technology education were conducted over 6 months and analyzed for study. Results showed that students in the study performed well in technology education, did less well in other subjects, and preferred hands-on learning. Five of the eight students said they would have dropped out of school if they had been unable to enroll in technology education. However, once enrolled, students' decisions to remain in school were influenced by their experiences with, achievements in, and satisfaction with the program.

Cohen, M., and Besharov, D. J. "The Role of Career and Technical Education: Implications for the Federal Government." Paper commissioned for "Preparing America's Future: The High School Symposium," Washington, DC, April 4, 2002. (ED 466 939) http://www.ed.gov/about/offices/list/ovae/pi/hs/besharov.doc

The role of CTE was explored through a review of research. It was concluded that the "college for all" myth is shortchanging those young people who are either uninterested in or unsuited for college and that CTE has the potential to create a better future for these young people.

***Dallas County Community College District Summary of Technical Education Follow-Up Survey (May 1998-August 1999 Graduate/Certificate Completers).*** Dallas, TX: Dallas County Community College, 1999. (ED 453 879)

The 509 technical education students surveyed after having graduated or completed a certificate from the Dallas County Community College District between May 1998 and August 1999 reported the following outcomes: earning a 2-year degree, improving skills for getting and keeping a job, earning a certificate from a technical program, and/or transferring to a 4-year college. Students were satisfied with their technical training, skills acquired for citizenship and critical thinking, and overall education. Following graduation, approximately 90% of the respondents were employed, with 70% working in jobs relevant to their field of study.

Harvey, M. W. "The Efficacy of Vocational Education for Students with Disabilities Concerning Post-School Employment Outcomes: A Review of the Literature." ***Journal of Industrial Teacher Education*** 38, no. 3 (Spring 2001): 25-44. http://scholar.lib.vt.edu/ejournals/JITE/v38n3/harvey.html

A literature review examined the efficacy of secondary vocational education with reference to the participation and success rate for students with disabilities. A high rate of vocational participation resulted in a significant improvement in postschool employment of this group, especially when training was occupationally specific and directed toward labor market needs.

Kerka, S. ***Career and Technical Education: A New Look. In Brief: Fast Facts for Policy and Practice No. 8.*** Columbus National Dissemination Center for Career and Technical Education, the Ohio State University, 2000. (ED 448 319) http://www.nccte.org/publications/infosynthesis/in-brief/in-brief08/index.asp

Today's CTE offers broader career pathways than did previous vocational programs. After a decade of academic-vocational integration



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and tech prep, it is recognized that school-to-career programs are about emphasizing a dual career path that leaves the option of college open while providing students with marketable skills. Workplace changes have made technical employment the fastest-growing sector of the labor market. The increasing opportunities and salaries associated with technical occupations have changed the demographics of today's CTE students who are often in the top 5% of their high school classes.

Johnson, A. B.; McDonald, D.; and MacAllum, K. ***The Lansing Area Manufacturing Partnership: A School-to-Success Story.*** Washington, DC: National Institute for Work and Learning, Academy for Educational Development, 2002. (ED 462 628) http://www.aed.org/aedgroups/eduworkforce/ctrniwl/publications/LAMPSuccess.pdf

Benefits of the Lansing Area Manufacturing Partnership (LAMP) program included work-based and project-based learning, team teaching, and opportunities for close interaction between staff, high school seniors, and employers. The study documented that, in the short term, participation in LAMP contributes to students' personal growth, enhances their employability skills, and improves their preparedness to make education and career decisions.

MacAllum, K., and Bozick, R. "What Happens after They Graduate? Results from a Longitudinal Study of STC Graduates." Paper presented at the annual convention of the Association for Career and Technical Education, New Orleans, LA, December 13-16, 2001. (ED 462 598)

Data collected from a study of students involved in the LAMP program, an academically rigorous business/labor-driven school-to-career program in Lansing, Michigan, showed that LAMP graduates had higher postsecondary enrollment than nonparticipants, higher GPAs, and higher hourly wages following graduation. LAMP appeared to prepare students better for the challenges and responsibilities of work, leading them to pursue career-enhancing opportunities at higher rates than nonparticipants.

Miller, K., and Meuleners, M. "Straight from the Source." ***Techniques: Connecting Education and Careers*** 75, no. 1 (January 2000): 24-25.

Two CTE students discuss the benefits of participation, citing student organizations and teacher involvement as factors that helped them learn new skills, prepare for change, and develop positive attitudes toward an ever-changing workplace.

National Centre for Vocational Education Research. ***TAFE Graduates: Do They Get What They Want from Training? Statistics 2001. At a Glance.*** Leabrook, Australia: NCVER, May 2002. (ED 465 897) http://www.ncver.edu.au/statistics/aag/tafe_want01/tafe_want.pdf

An analysis of data from the 2001 Student Outcomes Survey, which examined the progress of students who graduated from Australia's technical and further education (TAFE) programs showed that the employment rate for apprentices/trainees and labor market entrants increased from 51% in work before TAFE training to 71% in work afterward. Approximately 90% of students who sought to improve their skills through TAFE training were employed before and after their training.

Ryan, C. ***Individual Returns to Vocational Education and Training Qualifications: Their Implications for Lifelong Learning.*** Leabrook, Australia: National Centre for Vocational Education Research, 2002a. (ED 463 451) http://www.ncver.edu.au/research/proj/nr0019.pdf

Data from Australia's 1997 Survey of Education and Training showed that individuals who complete vocational education and training (VET) qualifications generally receive higher wages than similar individuals who do not complete VET, although wages vary by VET qualification level.

Ryan, C. ***What Are the Longer-Term Outcomes for Individuals Completing Vocational Education and Training Qualifications?*** Leabrook, Australia: National Centre for Vocational Education Research, 2002b. (ED 463 451) http://www.ncver.edu.au/research/proj/nr0020.pdf

A study conducted by the Australian Bureau of Statistics showed that completing VET qualifications improved graduates' full-time employment outcomes. However, male graduates realized more immediate and substantial benefits from completion of their qualifications than did female graduates.

Sanchez, J. R., and Laanan, F. S. "The Economic Returns of a Community College Education. ERIC Review." ***Community College Review*** 25, no. 3 (Winter 1997): 73-87.

The results of studies from several states show that all reporting ethnic groups of vocational students who graduated from community colleges realized positive gains in earnings within 3 years of graduation.

"The Earning Potential of Career and Technical Education." ***Techniques: Connecting Education and Careers*** 76, no. 6 (September 2001): 24.

A follow-up study of students graduating from the University of Wisconsin and the Milwaukee Area Technical College from 1993-1998 confirms the benefits in potential earnings of career and technical education. Students who upgraded their skills and received an associate's degree increased their earnings by 9 percent more than students who graduated with only a high school diploma and continue to be positioned to achieve higher salaries in subsequent years.

***Wisconsin Technical College System Board 2002-2001 Graduate Follow-Up Report.*** Madison: Wisconsin Technical College System Board, April 2002. http://www.board.tec.wi.us/Publications/GraduateFollow-up/default.htm

A report on the 2001 graduate follow-up survey revealed that 97% of the respondents were satisfied or very satisfied with their training and 80% of them were employed in jobs related to their programs. Approximately one-third of the respondents were 20-24 years of age and enrolled in health-related business or industrial service programs. Forty-four percent of the respondents were attending technical college in preparation for employment.

Wonacott, M. E. ***Benefits of Vocational Education. Myths and Realities No. 8.*** Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, the Ohio State University, 2000. (ED 441 179) http://www.ericacve.org/mr.asp

Although many people have associated vocational education with noncollege bound, at-risk, or special needs students, new career/technical/vocational programs attract a wide range of students, preparing them with skills that increase worker productivity, skill transfer, job access, and job stability. Eighty percent of high school students take at least one occupationally specific vocational course and one in eight academic students takes more vocational courses than do vocational students.

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